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10/010,203	11/30/2001	Goldino Sousa Alves	01-603	6290

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EXAMINER	
KING, BRADLEY T	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/010,203
Filing Date: November 30, 2001
Appellant(s): ALVES, GOLDINO SOUSA

Barry L. Kelmachter
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/4/2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 2 and 10-14 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

2,103,480	Mason	12-1937
JP 8-245118	Fuji Tech	9-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The 112 1st paragragh rejection of claims 2 and 10-14 has been withdrawn.

Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Mason.

Mason discloses all the limitations of the instant claims including: an elevator component, a second component 18 or 17, at least one vibration isolator (17, 19, 13, 12) being positioned between the elevator component and the second component, and each vibration isolator having a plurality of layers with at least one layer 13 or 17 being

a hard layer and at least one layer 19 being a soft layer, the elevator component being an elevator cab, the second component being a guide rail.

Claims 2, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 8-245118.

JP 8-245118 discloses all the limitations of the instant claims including: an elevator component, a second component 26 or 1, at least one vibration isolator 22 being positioned between the elevator component and the second component, and each vibration isolator having a plurality of layers with at least one layer 21 or 23 or 27 being a hard layer and at least one layer 22 being a soft layer, the elevator component being an elevator cab, the second component being a guide rail.

Regarding claim 11, the layers 22 are made of rubber.

Regarding claim 12, JP 8-245118 discloses a flange 27.

Regarding claim 13, JP 8-245118 discloses a bracket 20 or 21.

Regarding claim 14, JP 8-245118 discloses two isolators side by side. See figure 1.

(11) Response to Argument

In response to Appellant's arguments regarding Mason, it is maintained that the rejection is proper. As set forth in the rejection above, Mason discloses a vibration isolator with at least one hard layer and at least one soft layer. While the Appellant

contends that elements 13 and 17 are not part of the vibration isolator, the claim language fails to define the isolator in a manner which would preclude this interpretation. The claim merely positions the isolator between a guide rail and a cab. Components 13, 17 and 19 of Mason collectively form a vibration isolator that is connected between an elevator cab and a guide rail. It is maintained that the rejection is proper.

In response to Appellant's arguments regarding Yoyoshima, it is noted that the inventor name "Yoyoshima" does not correspond to the relied upon reference JP 8-245118. Appellant's arguments and description of the reference does appear to correspond to the JP 8-245118 document and the rejections cited in the appeal brief are correct. Therefore, Appellant's arguments are considered to be directed towards the JP 8-245118 document. The reference discloses hard layers 21 and/or 23 and soft layers 22. Elements 23 are plates that constrain the soft layers 22. Components 21, 22 and 23 of JP 8-245118 collectively form a vibration isolator that is connected between an elevator cab and a guide rail and isolate noise and vibration from being transmitted between the two components. Therefore, it is maintained that the isolator of JP 8-245118 reads upon the limitations of the instant claim and the rejection is proper.

Regarding claim 10, JP 8-245118 discloses a plurality of hard layers 21, 23 (there are two plates labeled 23) and 27. JP 8-245118 further discloses a plurality of soft layers 22 (there are two separate layers 22) to form a plurality of hard layers and a

plurality of soft layers which are alternating (23, 22, 21, 22, 23). It is maintained that the rejection is proper.

Regarding claim 11, each soft layer 22 is made of rubber which must be either natural or synthetic. See paragraph (0010)

Regarding claim 12, JP 8-245118 discloses a layered vibration isolator (22, 23) connected at a first end to a flange member 27 joined to the guide rail (26 or 1).

Regarding claim 13, JP 8-245118 discloses the isolator (22, 23) having a second end joined to a bracket (21 or 20) having an aperture that allows the bracket to be connected to the elevator cab. See figure two which shows both elements 20 and 21 having holes which allow connection to the elevator cab.

Regarding claim 14, JP 8-245118 shows a pair of isolators on each side of the guide rail (figure 1) and therefore shows a first layered vibration isolator connected to a first side of the guide rail and a second layered vibration isolator connected to a second side of the guide rail. It is maintained that the rejections are proper.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

JACK LAVINDER
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BTK
September 13, 2004

Conferees
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Japanese Published Unexamined Patent Application (A) No. 08-245118, published September 24, 1996; Application Filing No. 07-79594, filed March 10, 1995; Inventor(s): Masaaki Kiri et al.; Assignee: Fujitekku Corporation; Japanese Title: Guide Shoe for Elevators

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GUIDE SHOE FOR ELEVATORS

CLAIM(S)

A guide shoe for an elevator, wherein a shoe supporting metal integrated with a shoe is supported by an anti-vibration rubber, characterized in that said anti-vibration rubber is positioned so that it is compression/tension-deformed in response to the shoe displacement shoe in the advancing direction of elevator cage and is shear-deformed in response to the shoe displacement in the plane orthogonal to said cage advancing direction.

DETAILED DESCRIPTION OF THE INVENTION

(0001)

(Field of Industrial Application)

The present invention pertains to a guide shoe for guiding an elevator cage in the vertical movement along a guide rail installed in the elevator ascending/descending track.

(Prior Art)

The prior art guide shoe of an elevator is explained below with reference to the figures. Fig. 7 shows an anterior view of the guide shoe, Fig. 8 a side view of Fig. 7, and Fig. 9 a planar view of Fig. 7. In the figures, 1 indicates a guide rail installed in the elevator ascending/descending track, 2 a shoe that is コ-shaped in its cross-sectional view to cover the head section of guide rail 1 in three directions and is made of low-friction material, 3 a shoe supporting metal in which shoe 2 is integrated, and 4 the frame of guide shoe secured to the frame of elevator cage and is コ-shaped to embrace the shoe supporting metal 3 in three directions, along with a raised section 4a on the side of side surface and a raised section 4b on the side of the rear surface.

(0003)

In the figures, 5 indicates an anti-vibration rubber positioned between the shoe supporting metal 3 and the raised section 4a of frame 4, and its one end 5a is secured to the outer surface of the shoe supporting metal 3 by bolt 6, while the other end 5b is secured to the raised section 4a on the side of side surface by bolts, 7a, 7b.

(0004)

When the guide shoe is used under this condition, the shoe 2 suffers from a stick slip generated by a friction force between the shoe 2 and the guide rail 1 immediately before the start and slow stop of elevator cage, by which abnormal vibration and noise are generated from the guide shoe, causing discomfort to passengers. To reduce the horizontal vibration, the spring constant of the anti-vibration rubber 5 in the horizontal direction needs to be reduced. However, the anti-vibration rubber 5 has a small spring constant in the shear direction but has a high spring constant in the compression/tension direction. Therefore, if the spring constant of anti-vibration rubber 5 is made smaller under this condition, the vibration and noise from the stick slip will get worse, which is a problem.

(0005)

To solve this problem, a wire spring was used to regulate the vertical displacement of shoe 2. In the figures, 10 indicates a wire spring, and its top and bottom ends 10a and 10b are secured to the outer surface of the shoe supporting metal 3 by bolt 11, while its center 10c is secured to the raised section 4 of rear surface of frame 4 by bolt 12.

(0006)

By this, the vertical displacement of shoe 2 is regulated, so the stick slip generation of guide shoe is prevented; thereby preventing the abnormal vibration and noise from being generated from the guide shoe.

(0007)

(Problems of the Prior Art to Be Addressed)

With the aforementioned prior art example, however, there is a problem that the structure becomes more complex since a wire spring 10 has to be added. In addition, if the anti-vibration rubber 5 has abnormal deflection or damage, the cage will be abnormally displaced, by which the equipment inside the ascending/descending path may possibly interfere with each other.

(0008)

(Means to Solve the Problems)

In the present invention, an anti-vibration rubber is positioned via a mounting bracket so that it has a compression/tension deformation in the vertical direction, i.e., in the advancing direction of cage, and has a shear-deformation in the plane orthogonal to the advancing direction of cage; thereby preventing the stick slip generation without using a wire spring.

(0009)

(Operation)

According to the present invention, the anti-vibration rubber is compression/tension-deformed in the vertical direction, so its spring constant gets higher, making it difficult for the guide shoe stick slip to generate. Also, the anti-vibration rubber is shear-deformed in the horizontal direction, so its spring constant gets lower, improving the anti-vibration effect. In addition, the mounting bracket of the anti-vibration rubber works as a stopper, preventing the shoe from falling and the equipment in the elevator track from interfering with each other.

(0010)

(Embodiment)

One embodiment example of the present invention is explained below with reference to Fig. 1 – Fig. 3. Fig. 1 shows an anterior view of the guide shoe in this embodiment example. Fig. 2 shows a side view of the guide shoe. Fig. 3 shows a cross-sectional view of the A – A section in Fig. 2. In the figures, 20 shows the guide shoe frame secured to the cage frame; 21 an L-shaped bracket in its sectional view, which has a notch in the center and is secured to the raised section 20a of frame 20, 22 the anti-vibration rubber, the one end of which is vulcanization-bonded to the top or bottom surface of

the horizontal section of bracket 21, and 23 a plate with a stud bolt 24 that is vulcanization-bonded to the other end of anti-vibration rubber 22.

(0011)

In the figures, 25 indicates the shoe supporting metal in which the shoe 26 is integrated; to its top and bottom sections, the L-shaped bracket 27 is soldered, and it is connected to the anti-vibration rubber 22 via bolt 24 and plate 23. In the figures, 28 and 29 indicate the shoe-holding metals for holding the shoe 26 and are secured to the top and bottom ends of shoe-supporting metal 25. In the figures, 30 indicates a stopper secured to the rear surface of the shoe supporting metal 25, 31 a bolt secured to the rear surface of shoe supporting metal 25 and penetrating through the hole 20b made in the raised section 20a of frame 20, and 32 a nut attached to said bolt.

(0012)

In the aforementioned structure, the anti-vibration rubber 22 is compression/tension-deformed in the vertical direction and shear-deformed in the horizontal direction. Therefore, its spring constant becomes high in the vertical direction, so the stick slip of the guide shoe hardly generates, whereas its spring constant becomes low in the horizon direction, so the anti-vibration effect is improved. In addition, even if the anti-vibration rubber 22 is subjected to abnormal deflection or damage, the bracket 21

functions as a stopper, preventing the shoe and shoe supporting metal 25 from falling off and the equipment in the elevator track from interfering with each other.

(0013)

As explained above, according to the present invention, the stick slip generation can be prevented without using a wire spring used in the prior art, so the number of parts needs not be increased, but the anti-vibration effect is improved in the horizontal direction, improving comfort for the passengers.

(0014)

Another embodiment example of the present invention is explained below with reference to Fig. 4 – Fig. 6. In this example, the plate with a stud bolt is vulcanization-bonded to both ends of anti-vibration rubber. Also, instead of using the mounting bracket in L shape in its cross-sectional view, the mounting bracket shaped in U in its vertical sectional view is used. Fig. 4 shows an anterior view of the guide shoe in this embodiment example. Fig. 5 shows a side view of the guide shoe, and Fig. 6 the B – B section of the guide shoe in Fig. 5.

(0015)

In the figures, 40 indicates the mounting bracket shaped in U and having a notch in the center, and 41 and 42 the plates with stud bolt 41a and 42a bonded by vulcanization to the top and bottom ends of anti-vibration rubber 22. Same numerical references used in Fig. 1 – Fig. 3 show the same components. In this embodiment example, the top and bottom shoe holding metals, shoe supporting metal 25, and plate 41 are secured by one bolt 41a.

(0016)

As explained above, in this example, as with the case of example shown in Fig. 1 – Fig. 3, the stick slip generation is prevented, and the effect of horizontal anti-vibration of shoe 26 and the shoe fall-prevention effect are improved.

(0017)

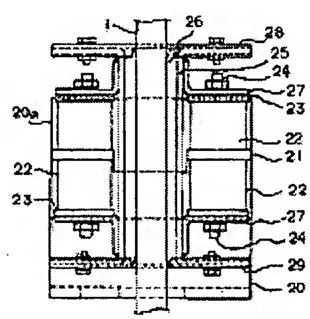
As explained above, by the present invention, a guide shoe for an elevator that does not have a wire spring but has a stick slip generation-prevention effect, a shoe fall-prevention effect, and a horizontal anti-vibration effect of shoe can be presented.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows an anterior view of the guide shoe as one embodiment example of the present invention. Fig. 2 shows its side view. Fig. 3 shows a

cross-sectional view of the A-A section in Fig. 2. Fig. 4 shows an anterior view of the guide shoe in another embodiment example. Fig. 5 shows its side view. Fig. 6 shows a cross sectional view of the B-B section in Fig. 5. Fig. 7 shows an anterior view of the prior art guide shoe of an elevator.

【図1】



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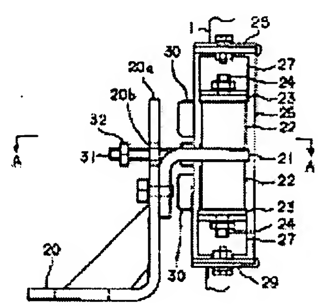

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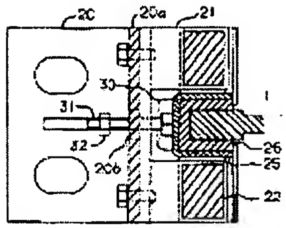

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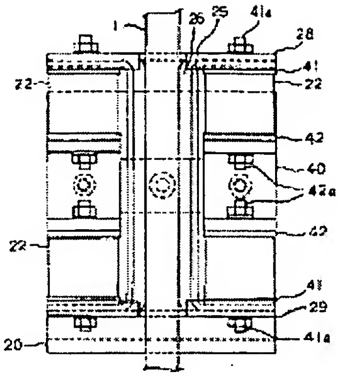

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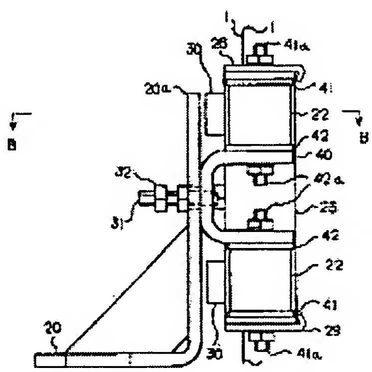

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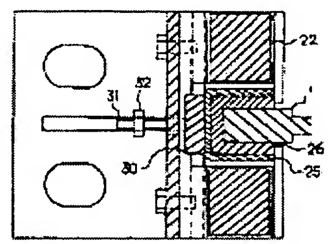

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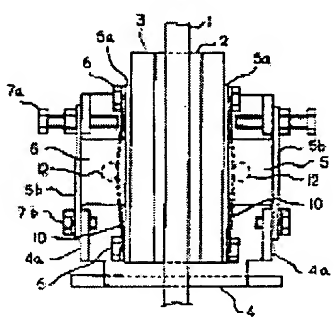

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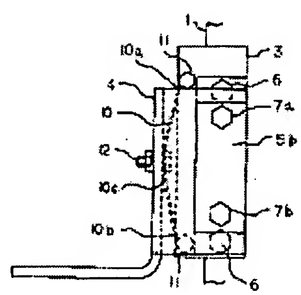

Translations
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